Report of the Pre-Assessment Workshop for 2021 Groundfish Stock Assessments of Dover Sole, Copper Rockfish, Quillback Rockfish, and Squarespot Rockfish

Pacific Fishery Management Council
Via Webinar

October 26 and 27, 2020

Monday, October 26, 2020 – 12:30 PM

SSC Groundfish Subcommittee Members Present

Dr. Owen Hamel, National Marine Fisheries Service Northwest Fisheries Science Center, Seattle, WA (Chair)
Dr. John Budrick, California Department of Fish and Wildlife, San Carlos, CA (also on the STAT for the copper, quillback and squarespot rockfish data moderate assessments)
Dr. Fabio Prior Caltabellotta, Oregon State University, Corvallis, OR
Dr. John Field, National Marine Fisheries Service Southwest Fisheries Science Center, Santa Cruz, CA
Dr. Melissa Haltuch, National Marine Fisheries Service Northwest Fisheries Science Center, Seattle, WA
Dr. Kristin Marshall, National Marine Fisheries Service Northwest Fisheries Science Center, Seattle, WA
Dr. Jason Schaffler, Muckleshoot Indian Tribe, Auburn, WA
Dr. Tien-Shui Tsou, Washington Department of Fish and Wildlife, Olympia, WA (also on the STAT for the copper and quillback rockfish data moderate assessments)
Dr. Will White, Oregon State University, Corvallis, Oregon

Stock Assessment Team Members Present

Dr. Aaron Berger, National Marine Fisheries Service Northwest Fisheries Science Center, Seattle, WA
Dr. Jason Cope, National Marine Fisheries Service Northwest Fisheries Science Center, Seattle, WA
Ms. Kristen Hinton, Washington Department of Fish and Wildlife, Montesano, WA
Ms. Lisa Hiller, Washington Department of Fish and Wildlife, Olympia, WA
Dr. Brian Langseth, National Marine Fisheries Service Northwest Fisheries Science Center, Seattle, WA

Dr. Chantel Wetzel, National Marine Fisheries Service Northwest Fisheries Science Center, Seattle, WA
Ms. Ali Whitman, Oregon Department of Fish and Wildlife, Newport, OR

Others Present

Mr. Justin Ainsworth, Oregon Department of Fish and Wildlife, Newport, OR
Ms. Susan Chambers, West Coast Seafood Processors Association, Charleston, OR, GAP
Mr. John DeVore, Pacific Fishery Management Council, Portland, OR
Ms. Sheryl Flores, Oregon Department of Fish and Wildlife, Astoria, OR
Ms. Abigail Harley, National Marine Fisheries Service West Coast Region, Seattle, WA, GMT
Dr. Jim Hastie, National Marine Fisheries Service Northwest Fisheries Science Center, Seattle, WA
Mr. Greg Lippert, Washington Department of Fish and Wildlife, Olympia, WA
Ms. Melissa Mandrup, California Department of Fish and Wildlife, West Sacramento, CA, GMT
Ms. Lynn Mattes, Oregon Department of Fish and Wildlife, Newport, OR, GMT
Mr. Todd Phillips, Pacific Fishery Management Council, Portland, OR
Mr. Dan Platt, Salmon Trollers Marketing Association, Fort Bragg, CA
Dr. Leif Rasmuson, Oregon Department of Fish and Wildlife, Newport, OR
Mr. Gerry Richter, B & G Seafoods, Santa Barbara, CA, GAP
Ms. Whitney Roberts, Washington Department of Fish and Wildlife, Olympia, WA, GMT
Mr. Brett Rodomsky, Oregon Department of Fish and Wildlife, Newport, OR
Dr. Daniel Studt, National Marine Fisheries Service West Coast Region, Long Beach, CA
Mr. Dan Waldeck, Pacific Whiting Conservation Cooperative, Portland, OR, GAP
Ms. Lorna Wargo, Washington Department of Fish and Wildlife, Montesano, WA, CPSMT
Ms. Ali Whitman, Oregon Department of Fish and Wildlife, Newport, OR
Mr. Louis Zimm, Pacific Fishery Management Council, San Diego, CA

A. **Call to Order**

The pre-assessment workshop for Dover sole and three data-moderate species convened via webinar on October 26th and 27th, 2020. Dr. Owen Hamel served as chair, with Dr. John Field filling that role during portions of the second day.

Data-Moderate Assessment Approaches

Dr. Jason Cope (NWFSC) presented (along with co-authors Dr. Chantel Wetzel and Dr. Brian Langseth both of NWFSC) an overview of data moderate assessment approaches which were discussed and accepted by the SSC Groundfish Sub-Committee (GFSC) and SSC during previous meetings. This data-moderate approach is based in Stock Synthesis (SS-CL: Stock Synthesis-Catch and Length) and uses a full time series of catches and a time series of lengths that is at least 10 years long. It was noted that SS-CL is a different data-moderate approach than used during the 2013 assessment cycle when Extended Depletion-Based Stock Reduction Analysis (XDB-SRA) and Extended Simple Stock Synthesis (exSSS) were used. These two approaches use an abundance index to augment catch only methods and informative priors on biological parameters (e.g., natural mortality and steepness or B_{MSY}/B_O and F_{MSY}/M) and relative stock status (i.e., depletion). SS-CL also has some ability to estimate these biological parameters as well as recruitment deviations. Three species, squarespot rockfish, copper rockfish, and quillback rockfish will be assessed with this data-moderate approach during the 2021 assessment cycle.

B. Dover Sole

Drs. Chantel Wetzel and Aaron Berger presented an overview of plans for the 2021 stock assessment for Dover sole (*Microstomus pacificus*)

Assessment History

The Dover sole stock was last assessed in 2011, and was estimated to be at 83.7% of unfished biomass at that time. Retrospectively, the 2011 assessment was comparatively less pessimistic than the earlier 2001 assessment or the update to that assessment in 2005. The 2011 assessment revised the estimate of 2001 stock status to 70% unfished biomass from 2001 assessment year and 2005 (update) estimates of 29% and 63% respectively. Annual catch limits (ACLs) have been set at 50,000 mt per year since 2016 but the actual landings have been nearly an order of magnitude lower.

Proposed Structure of the 2021 Assessment

The 2021 assessment will be performed using Stock Synthesis v. 3.30.16. It is anticipated that the assessment model will represent a single coastwide stock, with spatial structure represented in discrete fishing fleets (see *Fleet Structure*). The model will likely include sex-specific growth, mortality, and selectivity, and will estimate discard (and thus retention) rates.

Fleet Structure

Past assessments have handled the spatial fleet structure in divergent ways; the 2005 assessment divided the fleet into 'north' and 'south' components, while the 2011 assessment used State-specific fleets. After discussion, it was concluded that a north/south division was advisable (notwithstanding new information), with north comprising Washington and Oregon, and the south comprising California. This division reflects the fact that landings from both Washington and Oregon waters are often reported in aggregate at the same ports (e.g., Astoria) and thus are difficult to separate by State, and there are likely to be differences in fishing effort between those two regions over time, further complicating aggregation. Combining Washington and Oregon fleets would also ameliorate the issue of the pre-2002 gap in discard rate data from Washington (by essentially assume identical discard rates in Washington and Oregon).

Data sources

Multiple fishery dependent and independent data streams are available for the assessment.

Landings of Dover sole were presented by state from both recent years available within PacFIN and State specific historical catch reconstructions. In general, the time series of landings were highest in California during the 1980s and 1990s, while over the past two decades, the largest proportion of landings have been in Oregon. The Washington and California historical catch reconstructions have not changed since the 2011 assessment, while minor updates were undertaken for the Oregon reconstruction. The landings for Oregon from PacFIN differs from those used in the 2011 assessment, primarily because of the addition of some previously unaccounted-for scientific research landings, but those deviations are quite small relative to the overall scale of the fishery. Data from the California reconstruction did not include a small amount of landings caught in Oregon waters and landed in California waters, which were not available at the time of the workshop but will be available for the assessment. A particular challenge with the California reconstruction dataset is that landings were pooled across sole species prior to the 1960s.

Discard rates are available from several historical studies and from the West Coast Groundfish Observer Program (WCGOP). The discard data from WCGOP begin in 2002 and have coastwide observations across multiple gear types, however, only trawl gear observations were examined since the trawl fishery represents >99% of Dover sole landings. The discard rate has been extremely low since 2011 when the catch share program was implemented. That low rate is consistent in both the WCGOP dataset and in data from electronically monitored vessels. The estimated discard rate from the WCGOP for 2002-2011 is slightly lower than the estimates for that time period used in the 2011 assessment, reflecting a change in estimation methodology by WCGOP.

Length and age composition data for the assessment are available from PacFIN and from four fishery independent survey programs. The post-2011 age data are currently being updated to the extent possible with new age data for the assessment. New estimates of ageing error are planned given the available double-reads of nearly 9000 otoliths spanning years 1996 to 2019.

Index data are available from four fishery-independent survey programs: the Triennial survey, the Alaska Fisheries Science Center (AFSC) slope survey, Northwest Fisheries Science Center (NWFSC) slope survey, and the NWFSC West Coast Groundfish Bottom Trawl survey. The assessment team plans to split the Triennial survey into two separate time periods, as was done in the 2011 assessment. If the team decides not to make that split, a bridging analysis from the 2011 assessment will be required.

Regarding biological data, the weight-at-length and length-at-age relationships have been updated since the last assessment. The age-length data appear to have high variability at intermediate ages, such that a constant coefficient of variation around the von Bertalanffy growth curve may not be appropriate; this can be accommodated in the model with an alternative parameterization of the growth variability (logarithmic standard deviation by age). The fecundity and maturity relationships will remain the same as in the 2011 assessment given no new information. The NWFSC is undertaking an updated analysis of the maturity relationship, but that may not be completed prior to the assessment due to COVID-19-related delays. The natural mortality rate is planned to be based on a Hamel prior that itself is based on an estimated maximum age of 50 years, and the prior on steepness is planned to be based on the generic flatfish steepness estimate from Myers et al. (1999; R. A. Myers, K. G. Bowen and N. J. Barrowman, 1999. The maximum reproductive rate of fish at low population sizes, *Canadian Journal of Fisheries and Aquatic Sciences*, **56**, 2404– 2419.).

Data considerations

Examination of landings data with respect to depth and latitude reveal several notable patterns. In general, smaller fish are restricted to shallower water and larger fish are found deeper, though large females appear to migrate back inshore for spawning. Length composition data differ by latitude, with a greater frequency of small fish in some areas of the California coast. This appears to coincide with a separate analysis identifying juvenile Dover sole nursery habitats in those locations. There is also latitudinal differences in the sex ratio, but it is unclear what may cause that pattern, or how to account for it in the assessment model at this time.

The age composition data reveal the signature of possible recruitment pulses becoming visible in 2005 and 2015 implying potential above average recruitment in approximately 2-4 years prior given the ages being observed and ageing error. However, there was no evidence for extremely large recruit cohorts that would have undue influence on the age-structured dynamics of the stock.

Outstanding challenges and research needs

A major challenge with this assessment involves estimating sex-specific differences in selectivity and the natural mortality rate. In the 2011 assessment, the natural mortality rate, M, was the main axis of uncertainty, and female and male M were estimated separately. The 2021 assessment will also look at a different approach that estimates male mortality as an offset from the female mortality rate. This is because in the 2011 assessment there was less uncertainty in the relative difference in mortality rate between sexes than in the absolute estimates for each sex, so parameterizing the difference as an offset could improve precision. However, estimating sex-specific natural mortality is complicated by the fact that selectivity also differs between the sexes: males are fully selected at large sizes but females are less than fully selected by the fishery compared to males. It is likely not feasible to simultaneously estimate both M and selectivity (if selectivity is not 100%) without further information because the age composition of the landings could be explained by either changes in M or selectivity. The assessment team plans to further explore this problem by alternating holding one quantity constant and estimating the other. Updates to the Stock Synthesis 3.30 code (since 2011) will allow advanced flexibility in estimating separate selectivity curves for each sex.

The second issue arising from the lack of full selectivity on females is that it implies the stock could have cryptic female biomass. The shelf trawl surveys indicate that CPUE is high for females across the entire survey depth range, which implies that females could move into deeper water outside of the survey area (hence lower selectivity). Alternatively, females could exhibit some type of alternative behavioral pattern that leads to better trawl avoidance. It was recommended that the assessment team consult with industry contacts to explore plausible explanations for the low female selectivity.

A final issue relating to fleet dynamics in the assessment is that, since 2015, landings have been nearly an order magnitude lower than the ACL. This reflects a response of the fleet to market, management forces, and necessary processor limitations (processors limit the volume of Dover sole they will accept). It is possible that related limitations could affect the way that the recent removal history in the landings data affects the population dynamics in the assessment model. The assessment team will consider this point and consult industry contacts for additional feedback.

B. Squarespot Rockfish

Dr. Chantel Wetzel (NWFSC) presented (along with co-authors Dr. Brian Langseth and Dr. Jason Cope with NWFSC and Dr. John Budrick with CDFW) an overview of data availability and proposed approaches for the 2021 data-moderate assessment, which will be the first assessment of squarespot rockfish.

Data sources and considerations

Data sources for this assessment will include PacFIN, MRFSS, RecFIN, and State historical reconstructions. The majority of recreational catch comes from South of Point Conception, California where an increase in removals from ~5 mt to ~25 mt occurred in 2013. Commercial landings are typically <1 mt with discards typically <0.2 mt. Discards are highly variable and several industry representatives noted that changes in more recent discard estimates may be due to changes in the fishery or due to low observer coverage, and that there may be differences in discarding practices on charters of different lengths. Additional survey data is available from the NWFSC Hook and Line Survey and the NWFSC West Coast Groundfish Bottom Trawl Survey (WCGBTS). It was suggested that it might be worth exploring data from the Juvenile survey and CalCOFI.

Length data for the squarespot rockfish assessment also comes primarily from the recreational fishery and primarily represents females. The overrepresentation of females may be due to differences in size between the sexes. The majority of length samples are from the RecFIN (and MRFSS) database, though these are un-sexed and from the NWFSC WCGBTS which are sexed. Both the recreational and commercial fisheries seem to have similar selectivity. It was noted that several commercial samples with anomalously large lengths will be excluded due to suspected species mis-identification.

The NWFSC Hook and Line Survey may provide enough information to include as a fishery independent index of abundance. Some otoliths may be aged to update estimates of growth parameters and recent fecundity estimates are available.

Proposed model and fleet structure and modeling considerations

The model for this assessment is proposed to be on a single coast-wide area with both recreational and commercial fleets. Biological parameters, including those representing dimorphic growth, will initially be fixed, but sufficient information exists to explore allowing SS-CL to estimate L_{inf}, M, steepness, and recruitment deviations. One major outstanding issue identified is estimation of selectivity. Sex specific selectivity will be explored in this assessment as will patterns of discarding for males due to their smaller size.

Gerry Richter noted the similarity between the recreational fishery and the commercial fishery. Louis Zimm described sabiki gear that is being used to target these smaller rockfish for Asian fish markets.

Gerry also suggested that the anomalously large squarespot are likely speckled rockfish. John Budrick suggested to look into whether this was the same sampler for all occasions and John Field agreed that these observations could likely be excluded.

Louis Zimm suggested 1/2 day charter trips may have different discarding practices than full day charter trips due to differences in customer bases.

John Field suggested there are other indices (CalCOFI larval abundance data and the Juvenile Rockfish Survey) that may provide some useful information.

Tuesday, October 27, 2020 – 12:30 PM

C. Copper Rockfish

Dr. Chantel Wetzel presented an overview of plans for the 2021 data-moderate stock assessment for Copper Rockfish (*Sebastes caurinus*), which was last assessed in 2013 using a previous data-moderate approach (XDB-SRA).

The biological parameters, which includes stock productivity (i.e., steepness), will be fixed initially from externally derived values, although there is also the possibility of estimating them if the data supports that estimation. It is also possible to estimate annual recruitment deviations and selectivity parameters by fleet in this model.

Proposed model and fleet structure

For the 2021 assessment, the STAT is considering breaking down the US West coastline into four areas: (1) South of Pt. Conception to the US Mexico border; (2) North of Pt. Conception up to CA/OR State border; (3) Oregon; and (4) Washington. The rationale is to best capture the dynamics of those specific areas, considering the limited movement observed for copper rockfish and the different fishing mortality and fishing pressures observed in each one of these areas. The STAT plans to structure the fishing fleets by area as follows: (1) for each of the California models (i.e., South and North of Pt. Conception), one or potentially two commercial fleets will be modelled (e.g., separating alive versus dead or by gear type), and one recreational fleet, which includes private boat, CPFV and shoreside data combined; (2) for Oregon, one commercial fleet and one recreational fleet; and (3) for Washington, one recreational fleet only. For all these models, a two-sex model structure will be used to capture sex-specific growth dynamics for copper rockfish.

Data sources

The assessment will use a variety of data sources to provide information on: (1) removals, which include each State's historical reconstruction, PacFIN, MRFSS, RecFIN and additional sport catch data; (2) length data, which will be used directly in the model, from the PacFIN, MRFSS and RecFIN for California and Oregon, Sport Samples for Washington, NWFSC Hook and Line for South of Pt. Conception, and NWFSC WCGBTS for North of Pt. Conception; (3) age data, which will be used to estimate some of life histories parameters (e.g. length-at-age), from commercial fishery in Oregon and recreational fishery in Oregon and Washington; (4) biological parameters from a combination of the commercial and recreational data; and (5) possibly an index for the NWFSC Hook and Line survey for South of Pt. Conception.

Data considerations

The recreational mortality for California for commercial and recreational fisheries prior to 1980 will be based on the Ralston *et al*. 2010 catch reconstruction. In Washington, commercial landings are essentially zero (~0.02 mt for only 3 years of available data in PacFIN) and data on recreational removals are available with initial records starting in 1934. Washington recreational mortality is counted in terms of numbers of fish instead of weight of catch. The STAT will be considering whether to use removals in number of fish in the model or to use external conversions.

Commercial fishermen prefer live fish given the market prices, although fish landed live or dead are caught on the same trip. Selectivity is probably not different for live versus dead fish, but it could be different for gear type. Fishing behaviors for removals seem to be consistent across areas that will be used in the model, with slightly different behavior in California.

The discard mortality component is currently included in the recreational removals, which the STAT team have accounted for the dead discards either through RecFIN, MRFSS or State provided data that goes into RecFIN. There is also information on discards from WCGOP for commercial fleets that will be parsed out by model area. There were large amounts of dead discards observed in 2019 from commercial fleets. The STAT will be considering area-specific models. There is also a need to consider the basis for historical discard mortality by area in in the commercial fleets before 2002 and the recreational fleets before 1980.

Length data currently available for the 2021 assessment include mostly fish sampled from recreational boats across all areas. South of Pt. Conception, the majority of data sources (commercial fishery and recreational boats) did not include sex data. The NWFSC Hook and Line survey provides sex data associated with lengths, and indicates similar distributions between males and females. The NWFSC Hook and Line survey also includes samples from the Cowcod Conservation Area (CCA), and the STAT will be attempting to create an index of abundance for use in the Southern California area.

North of Pt. Conception, length observations in the recreational data for private boat / CPFV and shore-based gear, will be probably combined in one recreational fleet. Length data for the commercial fishery in Oregon were separated in live vs. dead fish, but was not readily available in PacFIN for California length samples, though it may be available from CALCOM. In either case, there is not presently sufficient reason for this distinction given the high degree of spatial overlap and the use of similar gear whether landing fish live or dead. In Washington State length data is only available for the recreational fishery, where there are fewer length observations (~ 140 samples per year), which include some sexed and non-sexed fish in the observations.

There are also limited and variable annual observations for the NWFSC WCGBTS which include some sex-specific observations in California in the North of Pt. Conception area.

Fleet structure and model parameterization

The STAT plans to combine live vs. dead commercial fleet, which would be more appropriate given that copper rockfishes are being caught on the same trips and there is no size-specific target. In terms of length distribution by gear type (i.e., Hook and Line and Longline), there are no strong differences in lengths observed between those two gear types in Oregon. In California, there are different size patterns observed in parts of the coast which indicated a preference for smaller fish in North of Pt. Conception. There was a brief discussion of the desired slot size that would create a dome-shaped descending limb for some of the live fish. However, it was identified that the commercial fishery is not targeting for a specific size or size range. The STAT will not be expecting to use a dome-shape selectivity curve for copper rockfish in these fisheries.

In terms of length-at-age data, STAT will be making some assumptions for each one of the models that will be used in the 2021 assessment. There are length-at-age studies for copper rockfish (Lea *et al*. 1999 and Love unpublished data). There is also age data from commercial and recreational fleets in Oregon (N=~350 and 2296, respectively) and sport samples in Washington (N=1826). The estimated length-at-age data using data combined from Oregon and Washington, showed a slight difference in the asymptotic size (L_{inf}) for females in comparison to the observed values in the literature that reached a much larger size. There was a discussion of whether growth assumptions should be the same in California, Oregon and Washington, estimating length-at-age based on available age data from Oregon and Washington, or estimates from literature available for California should be used to inform a specific growth in California. There was a small difference in growth between Oregon and Washington, where females and males reach a slightly larger asymptotic size in Oregon compared to Washington. The STAT is considering adopting one growth curve combining both data sources (Oregon and Washington), which would result in a larger sample size to estimate the growth curve. There was also discussion of whether the time period of collection provided data that were representative of the true maximum length, given the management restrictions limiting to access deeper depths, where larger fish are found. The STAT used data from the last 10 to 20 years, which may not provide an accurate representation of the growth for copper rockfish.

The weight-at-length estimates for both sexes were based on survey data available from California (Females: a=9.56E-06 and b=3.19; Males: a=1.08E-05 and b=3.15), which are similar to the values estimated in the 2013 assessment. There is no indication of differences in the weight-at-length across areas. Fecundity will be estimated using data from Dick *et al*. 2017, to model the relationship between length and fecundity in millions of eggs. The 2021 assessment will incorporate the length at 50% maturity (*L50*) of ~ 34.81 cm, based on samples in Oregon (Hannah, 2014). There is also an ongoing maturity analysis being conducted by the NWFSC (~160 samples), however, it is uncertain if the data will be available for use in the 2021 assessment. The maximum age (*Amax*) for copper rockfish will be based upon the available literature of 50 years (Love, 2002), which is consistent with the data observed from both Oregon and Washington of 51 years. Natural mortality (*M*) will be based on the Hamel prior of 0.104.

E. Quillback Rockfish

Dr. Brian Langseth provided an overview of the quillback rockfish data-moderate assessment. Quillback rockfish management for the past decade has been based upon a 2010 data-poor analysis using DB-SRA.

Model Structure

The 2021 data-moderate stock assessment will most likely implement three model areas, corresponding to the States of Washington, Oregon and California. Data sources include landings, lengths, ages, biological data, and the Triennial and NWFSC WCGBTS data. Quillback rockfish are not observed in the NWFSC Hook and Line survey since their primary range does not overlap with the survey. Coastwide size-at-age growth relationships are consistent across the coast. Male and female growth appear similar, supporting the use of a single growth relationship for both sexes and across all areas.

Data sources and considerations

For Washington, nearshore landings were restricted after 1995, though a small amount of quillback rockfish has occasionally been landed in the Pacific hake fishery with limited additional landings from the long line and tribal Pacific halibut fisheries. The current estimates of Washington historical commercial removals were based on a limited number of species composition samples. An alternative set of rules could be applied but would require many more assumptions. Washington does not borrow species composition data among ports to fill in missing information in its catch analysis due to differences between regions. The State could try to create coastwide species composition estimates as an alternative to help evaluate sensitivity. Workshop participants noted that quillback rockfish occurred infrequently in historical landings and that there may be limited benefit reconstructing very low historical catches that are not likely to have a meaningful impact on model results.

For California, the differences between the fishing practices employed by the live and dead fish fleets were discussed in the context of whether these fleets should be combined or should remain separate in the stock assessment model due to different targeting practices. These fleets fish differently and require different permits. While dead fish do occur on the same ticket with live fish, these are simply the ones that died on the way into port. The open access fishery targets quillback rockfish differently and uses different gear. Copper and quillback rockfishes inhabit similar depths and their ranges overlap north of Point Conception. While there was less support for separating the live and dead fish fisheries for copper rockfish, there was considerable support for separation in the quillback rockfish stock assessment. Regulations are similar for both the live and dead fish fleets but the live fish fishery tends to fish more nearshore so that the fish can be brought to market more quickly. Quillback rockfish caught at deeper depths do not survive as well. The lack of observers in the open access fleet creates difficulty in capturing the fishing characteristics of that fleet as well as the possibility of undocumented discard. Overall, a dearth of samples from the live fish fishery may be an issue in separating into live and dead fish fleets.

The Oregon historical troll landings were likely all caught using jig gear. Information from salmon managers suggest that these trips were primarily trolling for salmon and jigging for quillback rockfish secondarily, and that buyers, to avoid writing a second ticket, lumped all as troll caught fish.

The Oregon permitted nearshore fishery does not function at depths that would have issues with barotrauma. Commercial fishermen often vent if they are releasing fish, rather than using descending devices (which are not used by the commercial fishery but are required in the recreational fishery). In Oregon the fisheries for copper and quillback rockfishes should be very similar and most likely do not have dome shaped selectivity. In addition, single trips have both live and dead fish. Thus, there is support for combining the live and dead fish fleets.

Discard rates from the permitted versus open access fisheries may be different in California and Oregon. It is likely that there are higher discard rates in the open access fishery that will need to be investigated as different permit holders discard differently. Assessment authors should contact Oregon Department of Fish and Wildlife (ODFW) staff to discuss how Oregon and Washington permit holders may discard differently. There were time-varying size and trip limits in the past that should be considered. WCGOP sample sizes may be very small so some fleets may need to be combined.

Are CA commercial live and dead fish fishery targeting different sizes? Don't see landings/samples from the open access fleet as they require a permit for landings. Very low sampling in the live fish fishery. Most of the samples are probably from dead fish fishery. Number of samples for live fishery are generally lower from the commercial fleet b/c people don't want fish handled.

ODFW did not have a nearshore sampling program on the beach so length data would have come from on vessel observers. Some rec anglers know how and where to target them, most people don't, so the data are probably largely from a selected few anglers (boat private angler mode). Lack of shore-based sampling in OR, so unknown recreational fish are probably from MRFSS sampling program. Commercial live fleets tend to take smaller fish, which commercial dead fish fishery takes larger fish. However, these fleets do overlap quite a bit. Initial advice is that fishermen are not going out on separate live and dead trips, these are the same trips, so may not make sense to split these into two fleets.

Washington does not have a targeted quillback fishery, the catch is largely incidental. The sport and commercial selectivities are expected to be different due to gear differences.

In California the 'other' gear types may be people that are not targeting quillback and the quillback landings are bycatch. The nearshore gear restriction of fixed gear in shallower waters.

The Oregon commercial samples are largely trawl caught and sample sizes are small. Quillback rockfish may be more susceptible to commercial trawl because they can be found in flat areas around structure as well as in high relief habitat. Commercial trawlers are catching larger fish as bycatch, they are not targeting. In Oregon it does not make sense to separate commercial fleet by live and dead, may make sense to separate by gear type.

Workshop participants discussed combining commercial gears into north and south, of 40.10 for example, given limited sampling and issues with separating Oregon Washington fleets.

Discussions on the combination of the recreational charter and private boats into recreational fleets found support for combining OR recreational fleets.

Catches are generally compiled by port of landing.

F. Other Business?

ADJOURN